

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

In re Patent Application of:

Peterjan VAN NIEUWENHUIZEN

Atty. Ref.: LSN-36-1882

Serial No. 10/521,480

T.C./A.U.: ~~2616~~ 2473

Filed: January 18, 2005

Examiner: Candal Elpenord

For: NETWORK RESOURCE CONTROL

Conf. No.: 6986

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November 12, 2009

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

AMENDMENT UNDER 37 CFR 1.312

In response to Notice of Allowance mailed August 25, 2009, please amend the above-identified application as shown below:

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of controlling the rate of data transmission from a source of data to a user via a communications link, wherein processing means are provided to generate a signal representing a rate request which will be used in determining the rate at which data will be transmitted from the source to the user, said processing means generating the signal by:

obtaining a congestion charge on said communications link,

selecting a value indicative of the user's willingness to pay for a given transmission data rate,

determining the rate to be requested using the following iterative equation:

$$x_{n+1} = x_n + \text{delta} * \text{kappa} * x_n^{\xi} (w - x_n * \mu)$$

where x_n is the data transmission rate (bits per second) as calculated at an nth iteration; and x_{n+1} is the rate to be determined; $x_n * \mu$ is the charge to the user indicative of amount of congestion and is the product of x_n and congestion charge μ ; w is the willingness to pay; delta is the time elapsed between two iterations; kappa is a constant gain parameter; and ξ (ξ) is a reactivity parameter which varies during the data transmission to control the speed with which said rate requests are adapted in response to changing congestion conditions as a function of the indication of a difference between the user's willingness to pay and a congestion cost which is the product of congestion charge and a previously determined data transmission rate, said difference being weighted by a variable parameter, the processing means thereafter communicating the signal to the source of data and the rate of the data transmission from the data source to the user then being controlled on the basis of the signal.

2. (Previously Presented) A method according to claim 1, wherein said reactivity parameter assumes discrete values.
3. (Previously Presented) A method according to claim 1, wherein the value of said reactivity parameter varies continuously.
4. Cancelled.
5. (Previously Presented) A method according to claim 1, wherein the value of said reactivity parameter varies in accordance with the difference between the user's willingness to pay and the indication of the amount of congestion.
6. (Previously Presented) A method according to claim 1, wherein the value of said reactivity parameter is set depending on the indication of congestion or the user's willingness to pay.
7. (Original) A method according to claim 5, wherein if the difference between the indication of the amount of congestion and the user's willingness to pay falls within a predetermined range a first data rate is requested, and if the difference between the indication of the amount of congestion and the user's willingness to pay falls outside the predetermined range a second different data rate is requested.
8. (Previously Presented) A method according to claim 5 wherein said parameter ξ is a step function assuming the value 0 for values of said difference larger than a threshold value, and assuming the value 1 for values of said difference smaller than said threshold value.

9. (Previously Presented) A method according to claim 1 wherein obtaining a congestion charge includes determining a marking rate m of incoming data transmitted on said communications link and wherein said congestion charge is determined from said marking rate.

10. (Previously Presented) A rate controller for controlling the rate of data transmission from a source to a user via a communications link, said rate controller including processing means for generating a signal representing a rate request which will be used in determining the rate at which data will be transmitted from the source to the user, said processing means including:

means for obtaining a congestion charge for said communications link,

selecting means for selecting a value indicative of the user's willingness to pay for a given transmission data rate,

determining means adapted to determine said rate to be requested using the following iterative equation:

$$x_{n+1} = x_n + \text{delta} * \text{kappa} * x_n^{\xi} (w - x_n * \mu)$$

where x_n is the data transmission rate (bits per second) as calculated at an n th iteration and x_{n+1} is the rate to be determined; $x_n * \mu$ is the charge to the user indicative of amount of congestion and is the product of x_n and congestion charge μ ; w is the willingness to pay selected by selecting means in response to a determined transmission rate; delta is the time elapsed between two iterations; kappa is a constant gain parameter; and ξ (xi) is a reactivity parameter which varies during the data transmission to control the speed with which said rate requests are adapted in response to changing congestion, and

means for communicating the signal to the source, wherein the rate of the data transmission from the source to the user is controlled on the basis of the signal.

11. (Previously Presented) A rate controller according to claim 10, wherein said determining means is adapted to, determine the difference between the user's willingness to pay and the indication of the amount of congestion, and vary the value of the reactivity parameter in accordance with the difference.

12. (Previously Presented) A rate controller according to claim 10, wherein said determining means determines a first rate to be requested if said difference between the indication of the amount of congestion and said selected value falls within a predetermined range, and a second different data rate to be requested if the difference between the indication of the amount of congestion and the value falls outside the predetermined range.

13. (Previously Presented) A rate controller according to claim 10, wherein the value of said reactivity parameter is set depending on the indication of congestion or the user's willingness to pay.

14. (Previously Presented) A rate controller according to claim 10, wherein said means for obtaining a congestion charge comprises metering means for determining a marking rate of incoming data transmitted on said communications link.

15. (Previously Presented) A rate controller according to claim 11, wherein said reactivity parameter is a step function assuming the value 0 for values of said difference larger than a threshold value, and assuming the value 1 for values of said difference smaller than said threshold value.

16.-19. Cancelled.

20. (Previously Presented) A computer readable medium encoded with computer executable instructions executable by the processor to perform the steps of claim 1.

REMARKS

The Examiner is thanked for extending the courtesy of an interview with Applicant's representative on November 12, 2009.

As discussed during the interview, the present Amendment corrects an error in claim 1 by inserting the equation $x_{n+1} = x_n + \delta * \kappa * x_n^{\xi} (w - x_n * \mu)$ -- which was inadvertently omitted in the previously filed response. Entry pursuant to 37 C.F.R. §1.312 is believed to be in order.

The Examiner's statement of reasons of allowance (provided with the Notice of Allowance) erroneously states that the equation recited in claim 1 is:

$t.h: \sim _d \sim t; 4 _tr'a \sim 2sLY \sim i2s _s') \sim .!7 \sim g. \sim _ (J2 \sim t \sim \sim .! \text{ second!}$

The Examiner's statement of reasons of allowance also erroneously states that the equation recited in claim 10 is:

$x \sim + \sim _Z _N _ + \delta * \kappa * x \sim \sim (w - x \sim dg)$

During the interview, the Examiner indicated that these erroneous equations resulted from the USPTO scanning/OCR process, but that these erroneous equations would not be printed in the resulting Official Letters Patent. Instead, the correct equations (provided above in the foregoing claim amendments) would be printed in the resulting Official Letters Patent.

The Commissioner is hereby authorized to charge any deficiency in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140.

Respectfully submitted,

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